

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
23 December 2004 (23.12.2004)

PCT

(10) International Publication Number
WO 2004/112423 A3

(51) International Patent Classification⁷: H04R 5/033

(21) International Application Number:
PCT/CA2004/000905

(22) International Filing Date: 16 June 2004 (16.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2,432,832 16 June 2003 (16.06.2003) CA

(71) Applicant and

(72) Inventor: HILDEBRANDT, James, G. [CA/CA]; 65
Tuscany Meadows Place NW, Calgary, Alberta T3L 2S1
(CA).

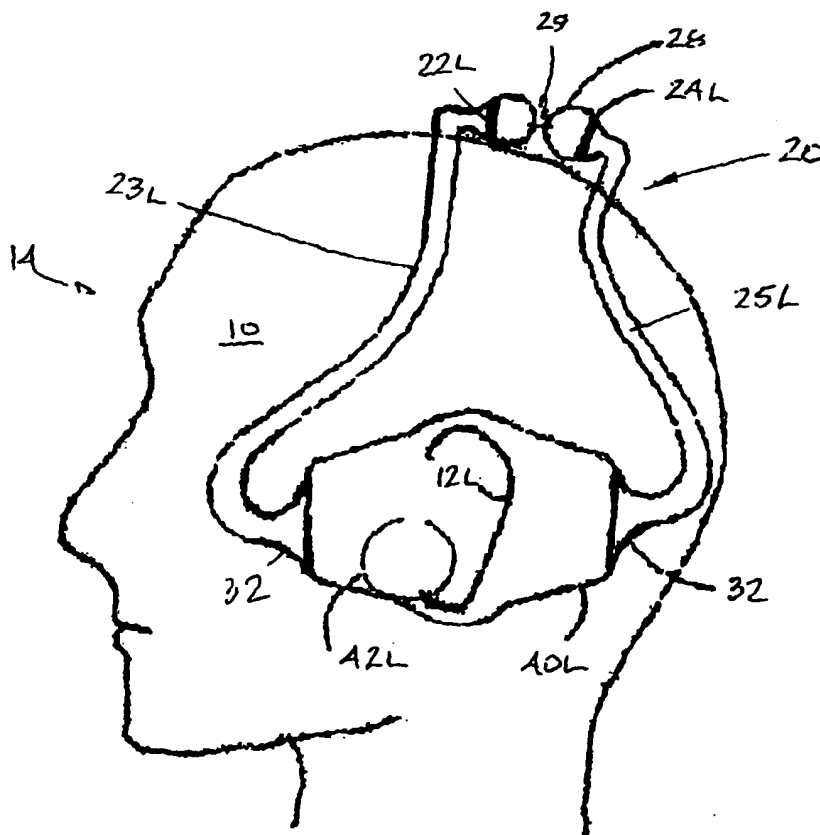
(74) Agents: HORNE, Doak, D. et al.; Gowling Lafleur Hen-
derson LLP, Suite 1400, 700-2nd Street, S.W., Scotia Cen-
tre, Calgary, Alberta T2P 4V5 (CA).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: HEADPHONES FOR 3D SOUND



(57) Abstract: Headsets (20, 50, 60, 71) provide surround sound and full 3 dimensional effects to a user to simulate the effects of direction and sound source. Advantages include: surround sound effect without the limitations of Head-Related Transfer Functions, and pinna effect customized to each user's ears; horn shape tube outlets (32) to create an efficient transmission of sound; ability to space the headset speakers (22, 24) away from the user's ear and to maintain sound quality by addition of a chamber (28) behind the speakers (22, 24), with the aid of tube sound guides (23, 25) and the horn shaped outlets; and, no need for electronic hardware to process the electrical signals to create desired effects as placement of the speakers creates the correct timing, and damping material (34) in the tubes between speakers creates a desired intensity drop. Head tracking capability is also provided.

WO 2004/112423 A3



Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*

(88) Date of publication of the International search report:

19 May 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.